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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/846,607

04/30/2001

Gerard Harbers

PHNL 000222

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06/01/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

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EXAMINER

BELL, PAUL A

ART UNIT

PAPER NUMBER

2675

12

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/846,607

Applicant(s)

HARBERS ET AL.

Examiner

PAUL A BELL

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonehara (4,870,484) in view of Siitari (6,213,615).

With regard to claim 1, Sonehara teaches an assembly comprising a display device provided with a pattern of pixels associated with color filters (figures 2a and 3a), and an illumination system for illuminating the display device, said illumination system comprising; a light-emitting panel and at least one light source (figure 12, item 12, column 1, lines 52-55), said light source being associated with the light-emitting panel (figure 12, item 8), the light source comprising at least three light-emitting diodes having different light-emission wavelengths (column 4, lines 30-36, column 8, lines 20-48 note the different material used in each LED shown in table II), said light-emitting diodes being associated with the color filters (column 2, lines 1-3) .

Sonehara does not teach "said illumination system operable to drive the at least three light-emitting diodes to change a color temperature of a picture to be displayed by the display device" . Sonehara instead uses red, green and blue LED's which had peaks in each wavelength range corresponding to red, blue, and green, and further Sonehara appears to only use the shutter mechanism (LCD) to control the amount of light provided to color filters and does not appear to change the drive signal to each LED as a additional means of change.

Siitari teaches, a illumination system operable to drive the at least three lamps to change a color temperature of a picture to be displayed by the display device (abstract, and figures 2 and 3). The Siitari "invention relates to a **method for adjusting the colour temperature** in a back-lit liquid Crystal Display (LCD)" (See Siitari column 1, lines 6-10). It is noted that Siitari uses lamps instead of LEDs but LEDs would of been an OBVIOUS FUNCTIONAL EQUIVALENT SUBSTITUTE. Regardless of whether to use LED's or lamps *would not be critical* to Siitari concept of controlling colour temperature. In any case Siitari is only being sited as an secondary reference for applicable concepts learned from prior art related to the importance of control of color temperature of the light source which can be used in **any** analysis display art such as Sonehara which may be used to improve the primary reference Sonehara provided there is sufficient clear motivation to do so at time of invention.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Sonehara apparatus to have ; "said illumination system operable to drive the at least three light-emitting diodes to change a color temperature of a picture to be displayed by the display device" , because Siitari provides the motivation for Sonehara to drive his LED light source to change the color temperature, for example Siitari teaches the benefits of this concept, "the colour temperature range of the background light is **extended and better opportunities** for adjusting for adjusting the colour temperature by changing the pass rate of the light are provided"(SEE Siitari abstract lines 5-9).

Sonehara does not teach "separately control the intensity of light emitted in at least one of said different light emission wavelength and thereby". Sonehara appears to only use the shutter

mechanism (LCD) to control the amount of light provided to color filters and does not appear to change the drive signal to each LED as a additional means of change.

Siitari further teaches in column 3, lines 8-18, "In one application of the method, the **brightness** of background light lamps with different colour temperatures is **adjusted separately for setting the color temperature**.According to this example, the colour temperature can be adjusted flexibly without changing the brightness from 6000 to 9000 K." this reads on the broad language "**separately control the intensity of light emitted in at least one of said different light emission wavelength and thereby**".

With regard to claim 2, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1, characterized in that the light source comprises three light-emitting diodes having different light-emission wavelengths, and the color filter comprises three color filters, a spectral emission of each one of the three light-emitting diodes being substantially adapted to a spectrum of one of the color filters (See Sonehara column 8, lines 20-48, table II).

With regard to claim 3, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1 or 2, characterized in that the light source comprises at least one blue light-emitting diode, at least one green light-emitting diode and at least one red light-emitting diode, the color filter comprises a blue, a green and a red color filter, and in operation, the blue color filter predominantly passes light originating from the blue light-emitting diode the green color filter predominantly passes light originating from the green light-emitting diode and the red color filter predominantly passes light originating from the red light-emitting diode (See Sonehara column 8, lines 20-48 and column 2, lines 1-3).

With regard to claim 4, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1 or 2, characterized in that at least one of the light-emitting diodes is chosen such that the wavelength associated with the spectral maximum of the light-emitting diodes corresponds to the wavelength associated with the spectral maximum of the corresponding color filter in the visible spectrum (See Sonehara column 2, lines 1-3).

With regard to claim 5, Sonehara as modified by Siitari teaches an assembly as claimed in claim 4, characterized in that the wavelength $\lambda_{\text{led.sup.max}}$ associated with the spectral maximum of at least one of the light-emitting diodes and the wavelength $\lambda_{\text{cf.sup.max}}$ associated with the spectral maximum of the corresponding color filter meet the relation: $((\lambda_{\text{led.sup.max}}) - (\lambda_{\text{cf.sup.max}})) \leq 5 \text{ nm}$ (See Sonehara figure 13 and figure 3A approximate $\leq 5 \text{ nm}$).

With regard to claim 6, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1 or 2, characterized in that the spectral bandwidth (FWHM) of the light-emitting diodes lies in the range between $10 \leq \text{FWHM} \leq 50 \text{ nm}$ (See Sonehara figure 13 approximate).

With regard to claim 7, Sonehara as modified by Siitari teaches an assembly as claimed in claim 6, characterized in that the spectral bandwidth lies in a range between $15 \leq \text{FWHM} \leq 30 \text{ nm}$ (See Sonehara figure 13 approximate).

With regard to claim 8, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1 or 2 characterized in that an intensity of light emitted by the light-emitting diodes varies in response to an illumination level of the picture to be displayed by the display device (it is inherent that as the data in the picture changes that the intensity of the LEDs also change to produce the picture)

With regard to claim 9, Sonehara as modified by Siitari teaches an assembly as claimed in claim 8, characterized in that the intensity of the light emitted by the light-emitting diodes can be adjusted on a frame-to-frame basis (inherent feature when display is "used" for video which changes the signal frame-to-frame).

With regard to claim 10, Sonehara as modified by Siitari teaches an assembly as claimed in claim 8, characterized in that the intensity of the light emitted by the light-emitting diodes can be adjusted for each color on a frame-to-frame basis (inherent feature when display is "used" for video which changes the signal frame-to-frame).

With regard to claim 11, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1 or 2, characterized in that each one of the light-emitting diodes has a luminous flux of at least 5 lm (inherent feature the device would not work properly unless 5 lm or greater).

With regard to claim 12, Sonehara as modified by Siitari teaches an assembly as claimed in claim 11, characterized in that the light-emitting diodes are mounted on a printed circuit board (it is obvious that a electrical component such as LED are mounted on a printed circuit board).

With regard to claim 13, Sonehara as modified by Siitari was shown above to disclose most of the limitations in claim 13 and in addition "a liquid crystal display panel" is claimed (See Sonehara column 1, lines 40-62).

With regard to claim 14, Sonehara as modified by Siitari was shown above to disclose most of the limitations in claim 14 and in addition "a controller" is claimed (It is inherent that a controller as broadly claimed is needed to change the signal as display data changes).

With regard to claim 15, Sonehara as modified by Siitari teaches an assembly as claimed in claim 1, wherein: the picture to be displayed by the display device is associated with one of a plurality of emission standards, each emission standard associated with a standardized color triangle; and the illumination system is operable to tune the light-emitting diodes such that the display device displays the picture in accordance with the standardized color triangle of the emission standard associated with the picture (See Sonehara figures 3b, 4 and 8b column 6, lines 42-59).

With regard to claim 16, Sonehara as modified by Siitari teaches an assembly as claimed in claim 15, wherein: the picture comprises one of a plurality of pictures, the plurality of pictures associated with different emission standards; and the illumination system is operable to tune the light-emitting diodes such that the display device displays each of the pictures in accordance with the standardized color triangle of the emission standard associated with each of pictures (See Sonehara figures 3b, 4 and 8b column 6, lines 42-59).

With regard to claim 17, Sonehara as modified by Siitari suggest an assembly as claimed in claim 15, wherein the plurality of emission standards comprise National Television Standards Committee (NTSC), European Broadcasting Union (EBU), and High Definition Television (HDTV) emission standards (these recitations of standards "used" by the apparatus are merely directed towards an obvious intended use of the Sonehara as modified by Siitari apparatus since it is capable of being used in conventional and standard ways.)

With regard to claim 18, Sonehara as modified by Siitari suggest a display device as claimed in claim 13, wherein the at least one color filter comprises blue, green, and red color

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filters (See Sonehara figure 2a how you group the filters is arbitrary and made obvious the different mathematical combinations).

With regard to claims 19 and 20 Sonehara as modified by Siitari was shown above in claims 16 to read on all these limitations.

Response to Arguments

Applicant's arguments filed 4/7/2004 have been fully considered but they are not persuasive.

The applicant argues on page 9 with regard to claims 1-20 that there is no disclosure or suggestion of the recited feature of "separately control the intensity of light emitted in at least one of said different light emission wavelength and thereby"

The examiner disagrees and references the more detailed rejection of the newly amended claims above.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Bell whose telephone number is (703) 306-3019.

If attempts to reach the examiner by telephone are unsuccessful the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377 can help with any inquiry of a general nature or relating to the status of this application.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or Faxed to: (703) 872-9306

Or Hand-delivered to: Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor


Paul Bell

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May 28, 2004


CHANH NGUYEN
PRIMARY EXAMINER